A Framework for Evaluating Taxes:

Terminology and Criteria

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by

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In considering the Virginia state and local tax structure and possible changes to it, a clear set of criteria will help to assure careful and consistent evaluation. The criteria should reflect goals and objectives the commission believes are important. Although exact terminology may differ from one list to another, public finance specialists have developed a rather standard set of criteria by which they evaluate taxes. These include such things as fairness and efficiency. Before listing and discussing specific criteria, however, some basic propositions and key terms are discussed.

Some General Propositions and Terminology

Several general propositions, important to tax policy making, are an important part of the framework for evaluating taxes. At first, some may seem illogical.

- People seek to transfer their tax burdens to others. The ability to transfer (shift) tax burdens varies across taxes, and with market conditions.
- Economic forces (market conditions) determine the extent to which tax shifting can succeed, and will govern the outcome, regardless of legislative intent.

- All tax burdens ultimately are borne by people; businesses, as such, do not bear the taxes imposed on them.
- If knowing the distribution of tax burdens is important to policy makers, taxes should be imposed as close to the intended point of burden as possible.
- The appropriate tax burden measure is the ratio of tax (after all shifting) to the underlying measure of tax base i.e., the *effective* tax rate, rather than the statutory rate.

The first several propositions involve two distinct concepts of tax burden – impact and incidence – and the related concept of tax shifting. The last involves the distinction between nominal (or statutory) and effective tax rates. These are taken up next, in reverse order.

Nominal versus Effective Tax Rates

There is a tendency to compare levels of taxes by reference to the rates at which they are imposed. For example, local government bodies commonly refer to their statutory property tax rates, expressed as so many cents per \$100 of assessed value. This may be misleading, because it focuses on only one of two determinants of the amount of tax. Any tax liability is the product of the rate times the base (T = R * B). The effective tax rate – the tax amount as a percentage of market value – may be higher in the locality with the lower nominal tax rate, depending upon the level of the statutory tax base (the assessed value, against which the statutory rate is levied) relative to the market value. To illustrate this possibility, the following table uses hypothetical data for taxes on homes in each of two localities, A and B, with each home having a market value of \$150,000.

Measures of Property Taxes on a Home with a Market Value of \$150,000							
Locality	Assessment Ratio	Assessed Value	Nominal Rate	Tax Amount	Effective Rat		
A	100%	\$150,000	0.8%	\$1,200	0.8%		
В	70%	\$105,000	1.0%	\$1,050	0.7%		

In locality A, assessed values are equal to market values, so the assessment ratio is 100 percent. In B, however, assessed values are only 70 percent of market values. Thus, although the underlying market values are the same, the house in A is on the tax books at \$150,000, its full market value, while the home in B is on the books at only \$105,000, 70 percent of market value. Locality A has a nominal tax rate of 0.8 percent (\$0.80 per \$100 of assessed value) which, multiplied by the \$150,000 assessed value, gives a tax liability of \$1,200 and an effective tax rate of 0.8 percent. Locality B has a nominal tax rate of 1.0 percent, seemingly a higher tax than in A. But the low assessment level in B gives a statutory tax base of only \$105,000, a tax liability of only \$1,050 (0.01 * \$105,000), and an effective tax rate of just 0.7 percent.

Calculating effective tax rates – tax amounts as percentages of the underlying measure of tax base, or taxpaying capacity – permits comparison of tax with different statutory bases. For example, even though state income taxes differ in their personal exemptions, standard

deductions, and itemized deductions, as well as their rates, their relative levels can be compared meaningfully. This is done by calculating taxes under each structure for taxpayers in similar circumstances, and then comparing the taxes owed to a common, broad definition of income. This broad measure – call it total income – ignores differences in statutory bases. It is a standardized base for the calculation of effective income tax rates, in the same way that market values of properties provide a standardized base that abstracts from assessment-level differences. The concept of an effective tax rate also permits comparison of such dissimilar levies as income, property, and sales taxes.

Tax Impact versus Tax Incidence

Although there is common recognition that taxes impose a burden, the term "burden" often is used in a rather indistinct manner. A key distinction is between initial and final burden:

- Initial burden referred to as *tax impact* is borne by those who make the payment to the government
- Ultimate burden referred to as *tax incidence* is borne by those whose real incomes are reduced as a result of it.

Thus, tax impact concerns where the tax first hits, and incidence concerns its ultimate resting point. (Note that some writers use the term *legal incidence* for what is called impact here, and the term *economic incidence* for what is called incidence here.) The initial and final burdens of a tax may be quite different. For example, the general sales tax is the legal responsibility of the seller, or vendor, yet it is likely that at least much of the tax falls on consumers – i.e., that the impact is on the seller and the incidence on the buyer. When the incidence and impact are not at the same point, the tax is said to have been *shifted*.

Tax Shifting

Tax shifting results from legal, and logical, attempts to avoid the burden of a tax. (*Avoidance* is legal ducking of a tax burden, whereas *evasion* is illegal.) Tax shifting results from changes in behavior as a consequence of the tax. For example, suppose a vendor not previously subject to a general sales tax become liable for a 5 percent tax. This amounts to a new cost, equal to 5 percent of sales. The vendor probably will seek to pass this on to consumers, through higher prices. However, consumers generally do not buy as much of an item at higher prices as at lower prices, and this limits sellers' ability to pass on the tax (or tax increase) to consumers. Complete transfer of the sales tax burden to consumers requires that consumers not alter their purchases as a result of the price increase – i.e., that they be completely insensitive to the price change or, in economic parlance, that demand be perfectly inelastic.

Some taxes offer more opportunity for shifting than others. In general, the earlier in the production-distribution chain a tax is imposed, the greater the likelihood of its being shifted. The sales tax example considers shifting tax burden to a point later in the production-distribution chain, which is referred to as *forward-shifting*. If the tax burden is transferred to an earlier point in the chain from where legal responsibility is fixed, then there is *backward-shifting*. The federal luxury tax on yachts imposed in the 1990s was repealed after it was

concluded that the effect had been to eliminate jobs for people making and selling yachts, rather than the intended effect of exacting more money from those able to afford the luxury of a new yacht. Large number of would-be yacht buyers, however, chose not to buy new yachts at their higher prices. By changing their purchases as a consequence of the tax, its burden was backward-shifted to yacht producers and suppliers.

Similarly, business property taxes may result in lower wages, or even fewer jobs, for workers. Higher taxes may cause a business to make a credible threat to leave the area. If workers have a stronger attachment to the area, they may agree to lower wages to keep their jobs in the area. We would say in such a case that labor is less mobile than capital, and this makes it possible for a tax imposed on capital to end up as a burden on labor. A general proposition of tax incidence analysis is that burdens tend to fall more heavily on the least mobile resources – i.e., those with fewer reasonable alternatives and, therefore, with less sensitivity to price or income changes.

This suggests an important conclusion: Businesses, as such, do not bear the incidence of any tax. Taxes imposed (i.e., with impact, or legal incidence) on business always result in burdens (incidence, or economic incidence) on people, in one of three capacities:

- Consumers To the extent a tax is forward-shifted, consumers pay higher prices than they otherwise would have to pay and, thus have their real incomes reduced.
- Workers and other resource suppliers To the extent a tax is backward-shifted, workers and other factors of production receive lower payments, and thus have their real incomes reduced.
- Business owners To the extent a tax can be neither forward-shifted nor backward-shifted, the owners of the taxed business (shareholders, in the case of a corporation) suffer reduced real incomes.

Why, then, the appeal of the often-heard argument, that "business should pay its fair share" of taxes? At first thought, it seems logical, and this may explain its appeal. But economic realities will trump political intent as those taxed search for legal means of reducing the cost of the tax they have been asked to bear. The idea of placing more taxes "on business" may – from a somewhat more cynical point of view – continue to be popular among decision makers who understand matters of tax shifting and incidence: Taxes for which business is legally responsible tend to be less visible. Typically, people probably do not give much thought to the fact that they are bearing much of the tax burden ostensibly falling on business. Even if they did, they would not be likely to have a very good idea of how much such taxes actually cost them. Such "stealth" taxes may seem to impose lower political costs.

This is not to suggest that businesses should pay no taxes. But business taxes should reflect the costs that businesses impose upon society. In the interest of efficient use of society's resources, these costs should not be subsidized through low, or zero, taxes.

Tax Criteria

Although tax criteria may go by different labels, and be grouped somewhat differently by different writers, there nonetheless is general consensus as to what the major criteria are. The

following list uses a relatively small number of general headings: equity, efficiency, adequacy, and predictability. This short list is expanded to encompass several specific concerns that are considered to be subheadings under these broad criteria, or principles. As will be seen, there often are conflicts among the various criteria.

Equity

The equity criterion requires that taxes by fair. Unfortunately, there are many views as to what constitutes fairness, and the matter is rather complex. In fact, there are two very broad concepts of equity – benefits-received and ability-to-pay – and the second has two parts to it.

Benefits-Received Basis

There is wide acceptance of the proposition that those who benefit from a service should pay its cost. The general practice of paying for streets and highways from taxes collected from people and firms in their capacity as highway users is an example of this. There are two basic limitations to the implementation of this principle.

First, it is not always clear who receives what benefits and, even if it is, it may not be possible to devise an effective mechanism to collect the appropriate amounts from the beneficiaries. It is important to note that equal access or use does not establish that benefits are equal. People have different preferences, and thus place different values upon the same thing. To take a non-government example, if you gave each of two people a sack of Big Macs, they might well derive different amounts of pleasure (benefit) from them, even though they were given the same amount of the same the thing. One person may love Big Macs, and the other may be a vegetarian – or may prefer Whoppers, or chicken sandwiches. In private markets for such goods, people take the prices as given, and adjust their consumption accordingly. But government services often are provided uniformly across an area.

Consider a local government program to fog for mosquitos. If effective, everyone in the benefit area will be free of mosquitos. But this doesn't mean they receive equal benefits. The service presumably is worth more to someone who suffers from mosquito bites that swell up and itch for days, than to someone who is not bothered in this manner. If the quantity is fixed, a benefits-based tax should vary in proportion to the benefits, to avoid making some people worse off. A major problem for such taxation, however, is that there generally is no way to know the differing values placed on a service by different people.

Another problem for benefits-received taxation is that it is not appropriate for redistributional programs, if we assume the major benefits accrue to recipients. Taxing those in poverty heavily enough to fund transfers adequate to raise them out of poverty is not feasible.

△bility-to-Pay Basis

For both these reasons, we often tax on the basis of ability to pay, rather than on the basis of

benefits received. Of course, this approach has its own set of problems. For example, what is the best measure of ability? Some of the major contenders are income, consumption, and wealth. It is likely that different ones are appropriate for different taxes. For example, if income is the criterion (or, at least, the major criterion) for evaluating the fairness of a property tax, why not use just the income tax?

Suppose for now, for illustrative purposes, that income is the preferred measure of taxpaying ability. What, exactly, is the measure of income? Starting with a clean slate, it certainly is possible that most would opt for a measure broader than the bases of current income taxes, because those exclude not only most non-monetary income, but also many forms of money income, as well. Once the definition of the general tax base is decided, there are other issues to be resolved, which fall under the headings of *horizontal equity* and *vertical equity*.

Horizontal Equity. The principle of horizontal equity requires that taxpayers who are similarly situated – i.e., with equal ability to pay taxes – should bear the same tax. Assume agreement on the definition of income, and then consider two households, each with \$50,000 of income. Is this enough to establish equal taxpaying ability, and assessment of equal tax bills? What if household A has six members, and household B has only two? Does there need to be an adjustment in the tax, to take less from the larger household? If so, by how much? Data show that costs do not rise in proportion with household size, so charging household B three times as much as household A may not be appropriate. Aside from household size, are other factors pertinent – e.g., health, living costs, number of hours worked to generate a given level of income?

Vertical Equity. The principle of vertical equity requires that taxpayers in different economic circumstances should pay *appropriately* different taxes. In other words – continuing with the assumption that income is the basic measure of ability to pay – how should tax burden change as income changes (holding constant other relevant considerations, discussed under horizontal equity)? There probably is nearly universal agreement that tax liability should go up as income goes up, but this is very imprecise guidance. Three patterns of distribution of taxes across income levels can be identified, and each satisfies the stipulation that taxes rise as income rises.

- Proportional As income rises, tax liability rises by the same percentage. Thus, the tax constitutes a constant percentage of income at all income levels.
- Progressive As income rises, taxes take a growing percentage of income.
- Regressive As income rises, taxes take a smaller percentage of income.

These are illustrated by the tabular data, below showing taxes – both as dollar amounts and as percentages of income – at income levels of \$10,000, \$20,000, \$50,000, and \$100,000. The baseline is a common 10 percent effective tax rate at \$10,000. Under the proportional system, tax liability is 10 percent of income at each income level. By contrast, under the progressive system, tax liability rises, in steps, from 10 percent at \$10,000 of income to 20 percent at \$100,000, and under the regressive example, tax liability – although rising in dollar amounts – falls from 10 percent at \$10,000 to 4 percent at \$100,000.

Examples of Proportional, Progressive, and Regressive Taxes at Selected Income Levels							
Nature of Tax Burden Distribution	Taxable Income Levels						
	\$10,000	\$20,000	\$50,000	\$100,000			
Proportional	\$1,000 (10%)	\$2,000 (10%)	\$5,000 (10%)	\$10,000 (10%)			
Progressive	\$1,000 (10%)	\$2,400 (12%)	\$7,500 (15%)	\$20,000 (20%)			
Regressive	\$1,000 (10%)	\$1,600 (8%)	\$3,000 (6%)	\$4,000 (4%)			

The numbers in the table are illustrative only; other degrees of effective-rate progression or regression are, of course, possible. It cannot be established objectively which pattern of burden distribution is best. The appropriate degree of differentiation in effective tax rates across levels of income (or other measures of taxpaying ability) is a matter of judgment

Efficiency

Broadly speaking, efficiency is simply the absence of waste. Economists talk of economic efficiency assuring that society provides the maximum possible benefits, or satisfaction of wants, from available resources. If we do things in a wasteful manner, we chew up more resources than necessary, and thus are able to do fewer things with available resources.

Several different considerations regarding taxes fit under the efficiency umbrella. Common ones include *tax neutrality* and *tax simplicity*, and the latter has somewhat different dimensions applicable to taxpayers and to the taxing government.

Tax Neutrality

The idea of tax neutrality is that taxes should not exert a direct influence on economic decisions; often, it is expressed as the notion that there should be a "level playing field." Tax provisions that favor one use of resources over another change their relative attractiveness. For example, if yachts are subjected to a high excise tax, suppliers' attempts to shift the tax forward to consumers result in higher prices. Consumers may respond to this change in relative prices – relative, because the tax applies to yachts, but not to all other possible consumption choices – by buying fewer yachts.

As another example, when business property is taxed at a higher effective rate than residential property, it makes business development relatively less attractive. Suppose, before tax considerations, investors find additional investment in businesses that would produce goods and employ workers might appear more attractive than a larger home, or a second or third

home. But suppose business property is subjected to an effective tax rate of 2 percent, and residential property is taxed at 1 percent. This difference tends to make additional residential investment more attractive, and in some cases may be a big enough difference to tip the balance to what – under neutral taxation – would have been the preferred resource use. This distortion in choices is said to create an *excess burden* or a *deadweight loss* – i.e., a burden over and above the *amount* of tax raised, attributable to the *form* of tax used.

It should be noted that in some instances, a non-neutral tax may promote efficiency by offsetting another, inappropriate incentive affecting resource use. For example, absent environmental laws and regulations, such "common-property" (as opposed to private-property) resources as air and water tend to be over-utilized; because no one in particular has property rights to them, they tend to be used without direct charge to the user, but at a significant cost to society. Properly designed taxes on discharges of pollutants can remove the existing incentive to over-use air and water resources, and thus promote efficient resource use. However, these are special cases. The general presumption favors neutrality.

Tax Simplicity

As tax provisions become more complex, they become more difficult to understand. This means additional costs must be incurred in making the tax system work. Some of these taxes fall on taxpayers more than on administrators, and for others the reverse is true. In either case, society has to commit more resources to making the system work. Tax criteria often may conflict with one another. Some additional complexity may be required by provisions favored for their perceived fairness. However, higher costs of administration and compliance – all else equal – are a form of waste, or of excess burden.

Administrative Costs. Among the activities for which tax agencies incur costs are writing regulations, designing forms, spot-checking returns, and auditing taxpayer records. The more complex the tax laws, the more difficult these matters tend to become. For example, when food is not subject to a sales tax, food must be defined, and records must be kept for food and non-food categories. The dividing lines are not always obvious. Some states consider soft drinks to be food, and others do not. In some, fruit drinks with at least 10 percent real fruit juices are food, but those with less are not food. Several years ago, when Pepsi introduced Slice, a soft drink with 10 percent real fruit juice, presumably some states that did not consider soft drinks to be food had to open up the matter to consider whether Slice was a fruit drink or a soda. Similarly, if an income tax were to provide additional personal exemptions based on disability, it would be necessary to define specifically which disabilities – both types, and extent – qualified, and to seek verification in questionable cases. Thus, added complexity tends to increase costs of administration.

Compliance Costs. Some lists of tax criteria include administrative costs, but not compliance costs. There probably is a bias within government to focus on administrative costs, for these are the ones that have to be covered from public budgets. However, if government wishes to promote maximum benefits from available resources – i.e., to promote efficiency – it should be concerned, as well, with costs borne by taxpayers. Although what is simple for administrators may tend to be simple for taxpayers, and vice versa, this is not universally the case, due to

differences in taxes.

Some taxes might be called *taxpayer-passive* and others *taxpayer-active*, reflecting the degree to which taxpayers must become involved in the taxing process. Property taxes generally – but real property taxes usually to a greater extent than personal property taxes – are taxpayer-passive. The government has the property valued, calculates the tax bill, and sends it to the taxpayer. About the only thing a property owner needs to do is write the check, and when property taxes are paid by mortgage holders from escrow accounts, not even separate checks for the taxes are needed. On the other hand, income taxes are taxpayer-active. Taxpayers have to file returns, which requires that records be kept and, in many instances, assistance hired in making sense of the instructions and preparing the returns. Relatively few studies of taxpayer compliance costs have been made, but some in recent years show the individual taxpayers' costs of complying with personal income taxes are considerably greater than the administrative costs of such taxes. This reverses an earlier belief that income taxes entailed lower costs than property taxes – a belief rooted in the myopic view that only administrative costs were important.

In general, then, the presumption should be in favor of simplicity, unless there are compelling reasons – based on other criteria – for adding complexity. And both administrative and compliance ease need to be considered.

Adequacy

The adequacy of a tax, or an entire tax structure, is the relationship between the tax base and the amount of services to be funded by the tax. It is useful to break adequacy into two broad time periods, the short run and the long run. These might also be termed static and dynamic aspects of tax adequacy. Notions of adequacy also are subjective, and subject to change over time. A tax base considered to be adequate a hundred years ago, when taxes at all levels of government in the United States represented well under 10 percent of gross domestic product, might not be thought adequate today, when government is roughly one-third the level of GDP.

Short-Run (Static) Adequacy

Adequacy in the short run concerns the relationship between the tax base and service levels at a given time. For example, suppose local property taxes are to fund elementary and secondary education, and it is thought that at least \$5,000 per pupil should be spent on such education. A locality with \$1,000,000 of market value per pupil would need to impose an effective tax rate of 0.5 percent to raise \$5,000 per pupil. That tax base might well be considered adequate. By comparison, a locality with only \$100,000 of market value per pupil would have to impose an effective property tax rate of 5.0 percent, a level almost certain to be considered too high, which would mean the tax was inadequate to fund the service requirements.

□Long-Run (Dynamic) Adequacy

Over time, many things change; the situation is dynamic. Continuing the school property tax example, relevant changes include the market values of properties, the numbers of pupils, and

the notion as to what level of per-pupil expenditure is appropriate for providing public education. A tax considered to be adequate at one time might become inadequate as of a later date. One scenario for this is that market values rise at only 2.0 percent per year, while the number of pupils rises 1.0 percent per year and the cost of the target level of education services rises at 3.0 percent annually. With service costs rising more rapidly than tax capacity, higher and higher effective property tax rates would be required over time to fund education. Conversely, a tax considered inadequate in one period might later be considered adequate if service costs rise more slowly than the growth in tax capacity.

Another way of looking at the matter is to say that consideration of long-term tax adequacy involves the relative *elasticities* of the tax base and of expenditure demand. Service demand is said to be elastic if the level of public services demanded grows more rapidly than the economy. A common measure of the overall economy of a state is personal income, estimated by the Bureau of Economic Analysis in the U.S. Department of Commerce. If, for each 1 percent increase in personal income, services demanded rise by more than 1 percent, demand is said to be *income-elastic*. Conversely, if the level of services demanded grows more slowly than personal income, demand is said to be *income-inelastic*. These two cases are separated by the case of *unit elasticity*, with services demand growing at the same rate as income. Similar elasticity measures can be calculated for tax bases. Long-run adequacy requires that tax bases rise as rapidly as demand for the services to be funded. (Some suggest tax revenues should rise apace with demand, a more stringent test, in that it required maintaining the effective tax rate.)

Predictability

State and local governments generally can borrow little, if any, to cover current operating expenses. The limitation on deficit spending means that budgeting is made easier if revenues can be estimated with a high degree of certainty. A few decades ago, this consideration was said to require stability of revenues, generally interpreted as revenue sources with low income-elasticities. More recent writings, however, have pointed out that what matters most is that the tax be predictable. A tax that has a high long-term income-elasticity could rate well, provided any departures from the long-term trend growth line be predictable, so that budget shortfalls (and large surpluses, although these are less problematic) can be avoided. A tax base subject to wide swings that are difficult to forecast, such as corporate income, does not do well under this criterion.

Conclusions

Good tax policy requires thoughtful attention to the features of a tax, and their likely implications for the various criteria, or principles, of taxation. It is necessary to strike an appropriate balance among criteria that sometimes are in conflict. An example of such conflicts is the possible trade-off relationship between the goals of long-run adequacy and predictability. Cigarette taxes have provided a rather stable, predictable source of revenue, but the growth of the base has lagged the growth of both the overall economy and government budgets. Similarly, the goal of administrative ease, or simplicity, may be at odds with simplicity for taxpayers; both should be considered, for it is the total social cost of making a tax system work that is important. As a final example, tax simplicity and common notions of equity may be in

conflict. Adjusting for taxpayer circumstances, other than amount of income, that may bear on ability to pay generally requires additional records and more complicated tax forms. As a general proposition, simplicity should be chosen, unless the reasons for added complexity are truly compelling.

Matters are complicated further by realization that legislative, legal intent as to the burden of a tax may be overruled by market forces. For example, there is a common desire to assure that business pay its "fair share," but the meaning of this is not clear when one realizes that businesses, as such, do not bear the burden of a tax; taxes with an impact on business have their incidence on people, in one of three roles (customer, resource supplier, or business owner – shareholders, in the case of a corporation). Another example of conflict between legal intent and economic reality is provided by states that stipulate the general sales tax is a tax on consumption, and require vendors to "prove" forward-shifting by listing separately the price of a taxed item and the sales tax on that purchase. A vendor may meet these legal requirements, but nevertheless absorb the tax, contrary to intent. Incentive to do so exists if the vendor faces low-tax, or even no-tax, rivals to whom sales will be lost if the price to which the tax is added is not reduced by the amount of the tax.

Consideration of rivals reminds us that market forces are important to the determination of tax incidence – i.e., ultimate, economic burden of a tax. In general, the party with the fewest attractive alternatives will tend to bear more of the tax burden, because that circumstance means behavior is less sensitive to changes in prices or incomes. But it is hard to generalize about who bears what tax, because market conditions may vary across areas and industries at a given time, and may vary across time for a given area or industry. Market share, and the circumstances confronting a firm's or industry's rivals matter. As an example, analysts have said that several decades ago, when Texas and Oklahoma were major petroleum producers on the world stage, petroleum severance taxes imposed by those states tended to be passed forward to consumers. But now, Texas and Oklahoma petroleum producers are relatively minor players, and thus take prices as given by the world markets. In this new circumstance, those severance taxes have to be absorbed, or backward shifted.

Thus, the safest generalization is that (1) we do not know exactly the incidence of several taxes, but (2) it will vary with market conditions, (3) falling more heavily on the least-mobile of the economic actors. Therefore, to the extent that policy makers wish to know the incidence of taxation (e.g., for distributional concerns), taxes should be imposed that (1) have their impact as close to the intended point of incidence as possible and (2) offer relatively few opportunities for shifting. One of the taxes ranking highest on these points is the personal income tax.